State Transportation Plan Update

Iowa Transportation Commission

September 13, 2016

IOWA DOT
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Status Update

- Ongoing Internal Steering Committee and Action Plan Focus Group meetings
- Previous Commission presentations in January, May, August
  - Overall approach to plan update and key changes
  - Public and stakeholder input
  - Development of vision and investment areas
  - Highway capacity needs analysis
  - Mobility and safety analysis
- Ongoing development of document and technical analysis for action plan
- Second round of public input closes end of September

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Highway improvement identification

- Corridor-level needs identification, not project-specific
- Ongoing, iterative analysis:
  - Capacity (May workshop)
  - Mobility and safety (August workshop)
  - Freight (September workshop)
  - Condition (September workshop)
  - Operations
  - Bridges
- Improvement types will be presented both individually and in a comprehensive, corridor-level matrix

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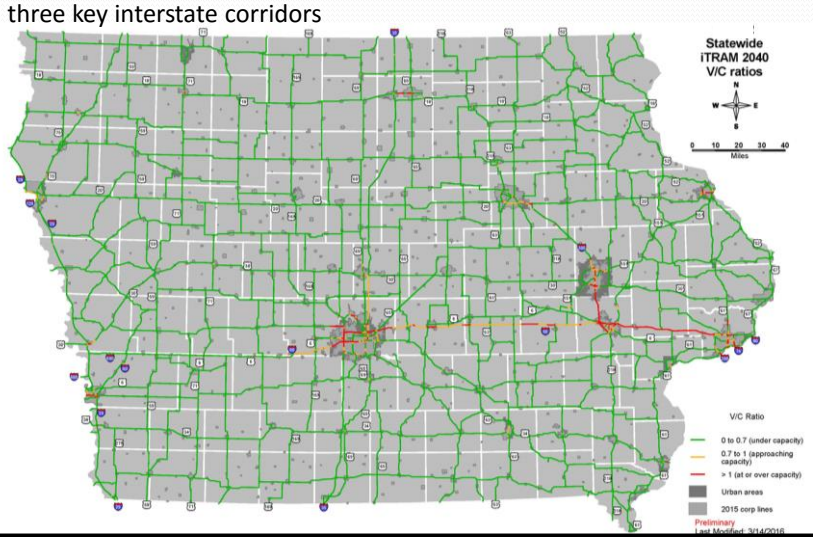
Future capacity needs analysis

- Segments approaching/over capacity in 2040 limited to urban areas and three key interstate corridors



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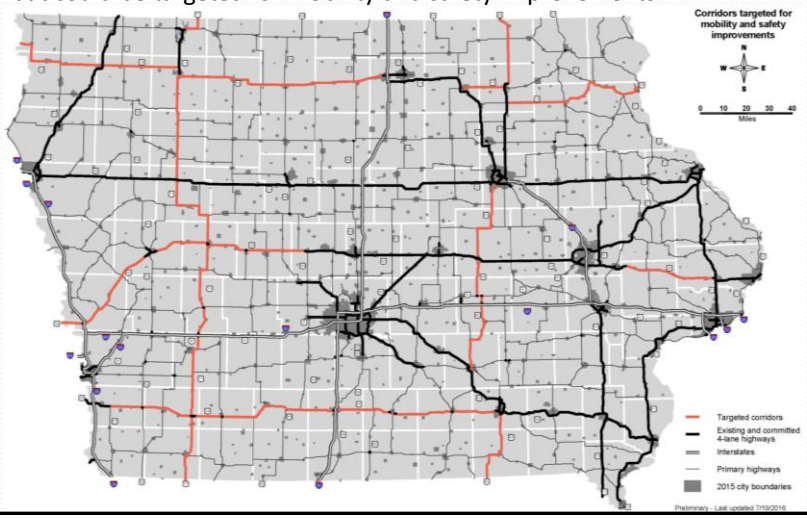
Mobility and safety analysis

- Network represents corridors that do not need 4-lane capacity expansion, but could be targeted for mobility and safety improvements



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Freight and condition analysis

- Next step in iterative highway improvement identification process, following capacity analysis and mobility/safety analysis
  - Freight improvements – utilizing locations identified in State Freight Plan
  - Condition improvements – methodology based on Infrastructure Condition Evaluation (ICE) tool

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Freight analysis – VCAP

- Value, Condition, and Performance (VCAP) matrix
  1. **Freight Mobility Issue Survey**
     - Populate initial improvement list
  2. **Value - Iowa Travel Analysis Model (iTRAM)**
     - Complete analysis and then rank each location
  3. **Condition - Infrastructure Condition Evaluation (ICE) tool**
     - Complete analysis and then rank each location
  4. **Performance - INRIX Bottleneck Ranking tool**
     - Complete analysis and then rank each location
  5. **Average the three rankings**
  6. **Truck traffic counts**
     - Tiebreaker if necessary

		1	2		3		4		5	6	
		VALUE		CONDITION		PERFORMANCE			TIEBREAK	
MAP ID	LOCATION	ITRAM	"V" RANK	ICE	"C" RANK	INRIX	"P" RANK	AVERAGE RANKING	TRUCK VOLUME	PRIORITY RANK
1										1
2										2
3										3
4										4
5										5

Highway freight improvement locations

		VALUE		CONDITION		PERFORMANCE			TIE	
MAP ID	LOCATION	ITRAM	"V" RANK	ICE	"C" RANK	INRIX	"P" RANK	AVERAGE RANKING	TRUCK VOLUME	PRIORITY RANK
48	I-80/29 N/S THROUGH COUNCIL BLUFFS	60.79	32	52.82	2	374	16	16.67	13579	1
47	US-151 N/S @ MAQUOKETA DR	53.29	38	57.36	6	1040	6	16.67	2115	2
87	I-74 @ MISSSISSIPPI RIVER	90.95	23	65.53	23	706	9	18.33	2908	3
57	I-35/80 N/S, E/W @ IA-141	49.26	43	61.17	13	2036	2	19.33	12761	4
76	I-380 N/S THROUGH CEDAR RAPIDS	76.37	26	55.34	4	123	33	21.00	7226	5
5	US-30 E/W THROUGH MISSOURI VALLEY	21.80	58	54.31	3	1563	4	21.67	993	6
79	I-380 N/S @ I-80/EXIT 0 & I-80 E/W @ I-380/EXIT 239	146.63	10	73.35	47	250	24	27.00	11161	7
15	I-35 N/S @ US-20/EXIT 142 & US-20 E/W @ I-35/EXIT 153	114.43	17	73.91	51	420	14	27.33	5559	8
55	I-35/80 N/S @ DOUGLAS AVE	52.83	41	59.84	11	116	34	28.67	12884	9
66	IA 160 E/W @ I-35 & I-35 N/S @ IA-160/ EXIT 90	108.67	18	69.29	36	114	35	29.67	8331	10
11	US 30 E/W @ US-59/IA-141	60.33	33	70.81	41	387	15	29.67	1377	11
84	US-61 N/S @ I-80/EXIT 123 & I-80 E @ US-61/BRADY ST/EXIT 295	53.65	36	69.57	37	368	17	30.00	11230	12
51	I-80/I-35/I-235 N/S, E/W @ SW MIX MASTER	92.24	22	73.83	50	365	18	30.00	6870	13

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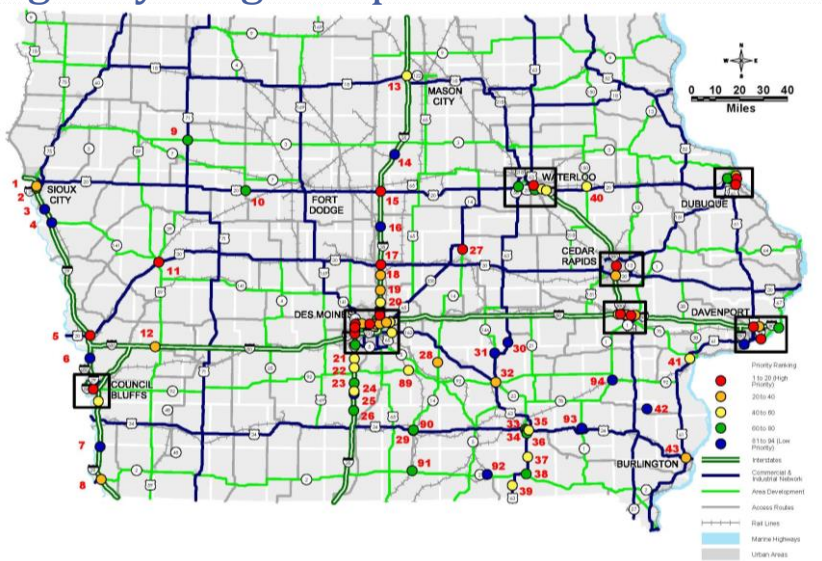
Highway freight improvement locations



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ICE Composite analysis

- Utilized ICE tool
- Seven criteria normalized and weighted for composite score
  - Pavement Condition Index (PCI) rating
  - International Roughness Index (IRI) value
  - Structure Inventory and Appraisal (SIA) sufficiency rating
  - Annual average daily traffic (AADT), combination truck count
  - AADT, single-unit truck count
  - AADT, passenger count
  - Congestion Index value
- 65% of weight on infrastructure condition, 35% on use

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ICE Composite analysis cont.

- ICE composite ratings for every segment of the primary system (27,141 segments)
- Segments aggregated to 467 analysis corridors
- Composite scores for the corridors developed by calculating a weighted average of the individual segments' scores
- NOTE: Corridors are made up of many segments, meaning that there may be small segments in good condition within a corridor that scores poorly overall, and vice versa

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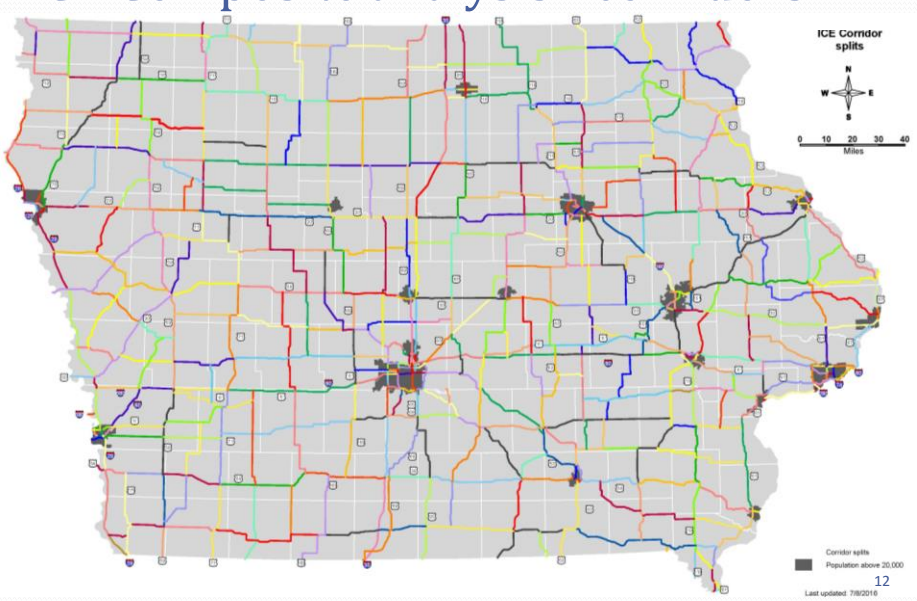
ICE Composite analysis - corridors



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ICE Composite analysis – SLRTP corridor identification assumptions

- Design life of pavement assumed to be 20-40 years
- Using a conservative basis of 20 years, approximately five percent of the system would need to be improved each year to keep up with deterioration
- The SLRTP is updated every five years, making identification of the bottom 25% of corridors most critical for this document

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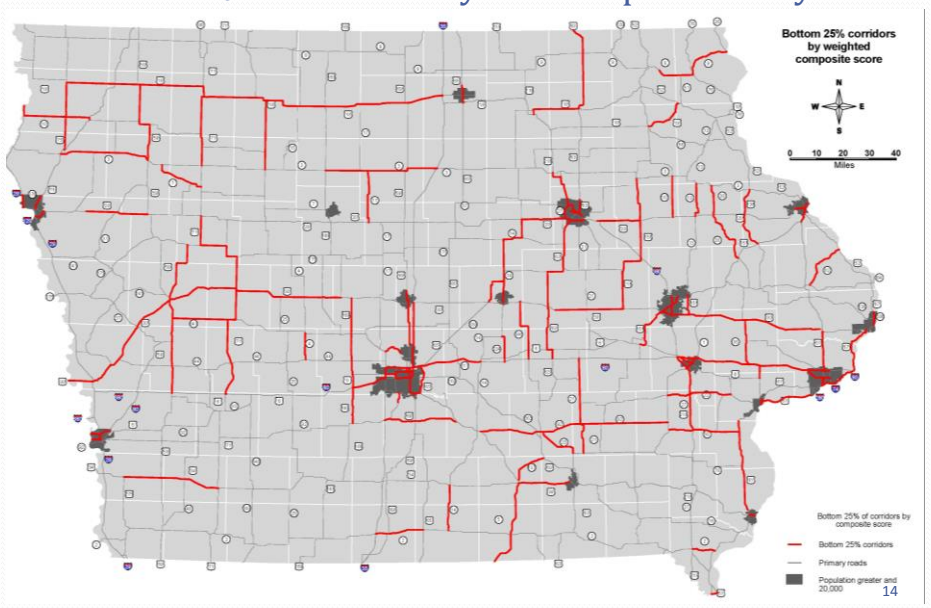
Bottom 25% of corridors by ICE Composite analysis



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Highway improvement matrix concept

- Intend to show a matrix of various types of improvements identified through analysis
  - Capacity
  - Mobility/safety
  - Freight (individual locations and number within corridors referenced)
  - Condition based on ICE Tool
- Eventual additions
  - Urban capacity
  - Operations
  - Bridge

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Highway improvement matrix concept

	Route	Corridor	Counties	Miles	Capacity	Mobility/ Safety	Freight	Condition	Operations	Bridge
Interstates	I-80	Nebraska border to jct of I-29 *Freight improvement at location ID 48*	Pottawattamie	3.5			1			
		jct of US 6 to jct of US 59 *Freight improvement at location ID 12*	Pottawattamie	31.5			1			
		jct of US 169 to west Mixmaster *Freight improvement at location ID 51*	Dallas, Polk	12.3			1			
		E Mixmaster to jct of IA 14 *Freight improvement at location IDs 62, 63, 64, 65*	Polk, Jasper	28.5			4			
		jct of IA 14 to jct of US 63	Jasper, Poweshiek	27.6						
		jct of US 63 to jct of US 151	Iowa, Poweshiek	32.8						
		jct of US 151 to jct of I-380 *Freight improvement at location IDs 78, 79*	Johnson, Iowa	19.7			2			
		jct of I-380/US 218 to jct of IA 1 *Freight improvement at location IDs 79, 80, 81, 82, 83*	Johnson	7.1			5			
		jct of IA 1 to jct of US 6	Cedar, Johnson	24.6						
		jct of US 6 to jct of I-280	Scott, Cedar	18.7						
		jct of I-280 to jct of I-74 *Freight improvement at location IDs 84, 85*	Scott	7.8			2			
		jct of I-74 to Illinois border *Freight improvement at location IDs 85, 88*	Scott	8.9			2			
		remainder of route	Pottawattamie, Cass, Madison, Dallas, Adair	74.8	Stewardship					

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Next steps

- Continue analysis for identifying highway improvements
  - Conduct remaining layers of highway analysis (urban capacity, operations, bridges)
  - Continue work on modal strategies and improvements
- Second round of public input active through 9/30
  - Initial feedback (500+ responses) continues to strongly support the direction of the plan

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Contact

Plan update webpage: www.iowadot.gov/iowainmotion

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